AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1.   (currently amended): A ~~Method~~method ~~of~~for allocating communication codes to channels set up in respect of mobile terminals ~~in communication~~communicating in a cell of a radiocommunication system, in which the cell is served by a fixed station having means ~~of~~for ~~adjustment~~ adjusting~~of~~ send/receive parameters defining a respective antenna pattern in respect of each mobile terminal in the cell, in which the allocated communication codes form part of a set of codes, ~~some~~ ~~at least~~ a plurality of which are mutually orthogonal, said method comprising:

      ~~wherein~~in response to a channel setup or reconfiguration request ~~in respect of~~for a first mobile terminal in the cell, ~~the allocation~~allocating a code to the ~~said~~channel ~~of a code~~;

      wherein the allocation to the channel of a code that is nonorthogonal to at least one code of the set that is already allocated to another channel set up in respect of a second mobile terminal in the cell is ~~conditionally admitted~~conditioned ~~, as a function of~~on at least a comparison between the send/receive parameters determined in respect of the first and second terminals.

2.   (currently amended): The~~Method~~ method according to Claim 1, wherein~~in which~~ the allocation of a code that is nonorthogonal to at least one code of the set already allocated is ~~admitted~~ further conditioned on at least the condition that~~when~~ the said setup or reconfiguration request occurs while the set no longer ~~offers~~comprises any code tailored to the channel to be set up or to be reconfigured and orthogonal to all the communication codes already allocated.

3.   (currently amended): The method~~Method~~ according to Claim 1, ~~in which~~wherein the ~~said~~send/receive parameters define, in respect of each mobile terminal in the cell, a main send/receive direction and ~~in which~~wherein the ~~said~~comparison between the send/receive parameters determined in respect of the first and second terminals ~~comprise~~comprises a criterion of discrepancy between the main directions defined in respect of the first and second terminals.

4.   (currently amended): ~~Method~~The method according to Claim 1, ~~in which~~wherein the ~~said~~ allocation to the said channel of a code nonorthogonal to at least one code of the set already allocated to another channel set up in respect of a second mobile terminal in the cell is ~~admitted~~further conditioned on at least the condition that~~when~~ the ~~said~~comparison between the send/receive parameters determined in respect of the first and second terminals exhibits a discrepancy greater than a threshold.

5.   (currently amended): ~~Method~~The method according to Claim 1, ~~in which~~ ~~one~~wherein ~~selects~~a code nonorthogonal to at least one code already allocated to another channel set up in respect of a second terminal is selected from among the codes of the set of codes that are not allocated as the communication code to be allocated to the channel to be set up or to be reconfigured in respect of the said first terminal ~~a code nonorthogonal to at least one code already allocated to another channel set up in respect of a second terminal~~such that the said comparison between the send/receive parameters determined in respect of the first and second terminals exhibits a maximum discrepancy.

6.   (currently amended): The method~~Method~~ according to Claim 1, ~~in which~~ wherein an antenna of the fixed station comprises ~~several~~a plurality radiating elements, each associated with a respective weighting coefficient, and ~~in which~~wherein the send/receive parameters determined in respect of a mobile terminal in the cell comprise a ~~fleet~~plurality of complex weighting coefficients associated with the antenna elements in respect of a radio signal exchanged between the ~~said~~terminal and the fixed station.

7.   (currently amended): The method~~Method~~ according to Claim 6, ~~in which~~wherein the ~~said~~comparison between the send/receive parameters determined in respect of the first and second terminals furthermore depends on a respective transmission power of the radio signals exchanged between the ~~said~~first and second terminals and the fixed station.

8.   (currently amended): ~~Method~~The method according to Claim 7, in which an integer k designates the ~~said~~first terminal and an integer M greater than or equal to 2 is such that there exist M-1 second terminals, in which the complex weighting coefficients w_i^j, with $1 \leq i \leq N$, $N \geq 2$, j integer different from k, are associated with the radiating elements i of an antenna of the fixed station in respect of a radio signal exchanged with a mobile terminal j from among the M-1 second mobile terminals, in which the complex weighting coefficients w_i^k are associated with the ~~said~~radiating elements i in respect of a radio signal exchanged with the mobile terminal k, in which P^j and P^k are the transmission powers in respect of the radio signals exchanged between the fixed station and the mobile terminal j and the mobile terminal k respectively, and in

which the ~~said~~ comparison between the send/receive parameters determined in respect of the ~~said~~

first and second terminals corresponds to the ratio

$$\frac{\sum_{i \in \{1...N\}} \sqrt{P^k} \times \left(w_i^{k*} \cdot w_i^k \right)}{\sum_{j \in \{1...M\};j \neq k} \sqrt{P^j} \times \left(\sum_{i \in \{1...N\}} w_i^{k*} \cdot w_i^j \right)}$$

9.   (currently amended): ~~Method~~ The method according to Claim 1, ~~in which~~ wherein

the ~~said~~ comparison between the send/receive parameters determined in respect of the ~~said~~ first

and second terminals is evaluated periodically so as to request a reconfiguration of the channel in

respect of the ~~said~~ first terminal.

10.   (currently amended): ~~Method~~ The method according to Claim 1, wherein ~~in~~

~~which~~ the ~~said~~ channels are downlinks.

11.   (currently amended): ~~Method~~ The method according to Claim 1, wherein ~~in~~

~~which~~ the ~~said~~ channels are uplinks.

12.   (currently amended): ~~Method~~ The method according to Claim 1, furthermore

comprising an estimation of speed of at least the first mobile terminal ~~at least~~ and ~~in~~

~~which~~ wherein the allocation of a code to the channel to be set up or to be reconfigured in respect

of the ~~said~~ first terminal furthermore depends on the estimated speed.

13.   (currently amended): ~~Method~~ The method according to Claim 12, ~~in which~~wherein the estimation of speed comprises an estimation of angular speed of the ~~said~~ mobile terminal comprising a storage of some at least of the ~~said~~ send/receive parameters determined in respect of the ~~said~~ mobile terminal and an estimation of a variation of the ~~said~~ send/receive parameters over a time period.

14.   (currently amended): The method~~Method~~ according to Claim 12, ~~in which~~ wherein the allocation to the ~~said~~ channel to be set up or to be reconfigured in respect of the first mobile terminal of a code nonorthogonal to at least one code of the set already allocated to another channel set up in respect of a second mobile terminal in the cell is moreover ~~performed~~ conditioned on at least the condition~~if~~ that the estimated speed of the first mobile terminal is less than a speed threshold.

15.   (currently amended): The method~~Method~~ according to Claim 1, furthermore comprising an estimation of a sense of movement of the ~~said~~ first and second mobile terminals and ~~in which~~wherein the allocation of a code to the channel to be set up or to be reconfigured in respect of the first mobile terminal furthermore depends on the ~~said~~ estimations of the senses of movement.

16.   (currently amended): ~~Method~~ The method according to Claim 15, ~~in which~~wherein the allocation to the ~~said~~ channel of a code nonorthogonal to at least one code of the set already allocated to another channel set up in respect of a second mobile terminal in the cell conditioned on at least ~~as a function of~~ the ~~said~~ comparison of the send/receive parameters is

subjected to a more severe condition if the ~~said~~ estimations of the senses of movement show a

mutual approaching of the first terminal and ~~at least one of~~ the ~~said~~ second ~~terminals~~terminal.

17.   (currently amended): ~~Method~~ The method according to Claim 1, wherein~~in which~~

the ~~said~~ send/receive parameters determined in respect of some at least of the mobile terminals

are transmitted by the fixed station to a station controller and ~~in which~~wherein the allocation of

code is performed by the ~~said~~ station controller.

18.   (currently amended): A ~~Fixed~~fixed station of a radiocommunication system

comprising:

-        an antenna system ~~for~~ serving a cell;

-        means ~~of~~for communicating with mobile terminals in the ~~said~~ cell by way of the

antenna system according to channels to which communication codes are respectively allocated;

-        means ~~of~~for adjusting~~adjustment of~~ send/receive parameters defining a respective

antenna pattern in respect of each mobile terminal in the cell;

-        means for transmitting~~of transmission,~~ to a station controller, ~~of~~ information

relating to the send/receive parameters determined in respect of some at least of the mobile

terminals; and

-        means ~~of reception~~for receiving, from the station controller, ~~of~~ a command to~~for~~

~~allocating~~allocate to a channel a code determined by the station controller as a function of at least

a comparison of ~~some~~ at least some of the ~~said~~ information transmitted, relating to the

send/receive parameters.

19.   (currently amended): The ~~Fixed~~fixed station according to claim 18, ~~in which~~wherein the ~~said~~antenna system comprises ~~several~~a plurality radiating elements, each associated with a respective weighting coefficient, and ~~in which~~wherein the ~~said~~information relating to the send/receive parameters determined in respect of a mobile terminal comprise a ~~fleet~~plurality of complex weighting coefficients associated with the antenna elements in respect of a radio signal exchanged between the ~~said~~terminal and the fixed station.

20.   (currently amended): A ~~Station~~station controller in a radiocommunication system ~~furthermore~~comprising a fixed station that ~~comprising~~comprises an antenna system for serving a cell and able to communicate with mobile terminals in the ~~said~~cell by way of the antenna system according to channels to which communication codes are respectively allocated, in which the allocated communication codes form part of a set of codes, a plurality of which are mutually orthogonal, the ~~said~~fixed station ~~having~~further comprising means ~~of~~for ~~adjustment~~adjusting ~~of~~ send/receive parameters defining a respective antenna pattern in respect of each mobile terminal in the cell,

the station controller comprising:

-       means for receiving, from the ~~said~~fixed station, information relating to the ~~said~~ send/receive parameters determined in respect of some at least of the mobile terminals;

-       means for receiving a setup request and means for generating a reconfiguration request for a channel in respect of a first mobile terminal in the cell;

-       means ~~for~~of ~~condition~~conditionally ~~allocation~~ allocating, to the ~~said~~channel, in response to the ~~said~~request, ~~of~~a code nonorthogonal to at least one code of the set already allocated to another channel set up in respect of a second mobile terminal in the cell, as a

function of a comparison between the information received, relating to the send/receive

parameters determined in respect of the first and second terminals.

21.   (currently amended): ~~Station~~ The station controller according to Claim 20,

~~wherein~~in which the means ~~of~~ for conditionally ~~allocation~~ allocating ~~control~~performs the

allocation of a code nonorthogonal to at least one already allocated code of the set only in

response to a setup or reconfiguration request occurring while the set no longer ~~offers~~ comprises

any code tailored to the channel to be set up or to be reconfigured and orthogonal to all the

communication codes already allocated.

22.   (currently amended): ~~Station~~ The station controller according to Claim 20, ~~in~~

~~which~~wherein the ~~said~~ send/receive parameters define, in respect of each mobile terminal in the

cell, a main send/receive direction and ~~in which~~wherein the ~~said~~ comparison between the

information relating to the send/receive parameters determined in respect of the first and second

terminals ~~comprise~~ comprises a criterion of discrepancy between the main directions defined in

respect of the first and second terminals.

23.   (currently amended): The station~~Station~~ controller according to Claim 20, ~~in~~

~~which~~wherein the antenna system of the base station comprises a plurality~~several~~ radiating

elements, each associated with a respective weighting coefficient, and ~~in which~~wherein the ~~said~~

information received, relating to the send/receive parameters determined in respect of each

mobile terminal in the cell ~~comprise~~ comprises a ~~fleet~~ plurality of complex weighting

coefficients associated with the antenna elements in respect of a radio signal exchanged between

the ~~said~~ terminal and the fixed station.

24.   (currently amended): The station~~Station~~ controller according to Claim 23,

furthermore comprising means ~~of determination~~for determining ~~of~~ a transmission power of a

radio signal exchanged between each mobile terminal and the ~~said~~ fixed station, ~~in which~~wherein

the ~~said~~ comparison between the information relating to the send/receive parameters determined

in respect of the first and second terminals furthermore depends on the respective transmission

power of the radio signals exchanged between the ~~said~~ first and second terminals and the fixed

station.

25.   (currently amended): The station~~Station~~ controller according to Claim 24, ~~in~~

~~which~~wherein an integer k designates the ~~said~~ first terminal and an integer M greater than or

equal to 2 is such that there exist M-1 second terminals, in which the complex weighting

coefficients w_i^j, with $1 \le i \le N$, $N \ge 2$, j integer different from k, are associated with the radiating

elements i of an antenna of the fixed station in respect of a radio signal exchanged with a mobile

terminal j from among the M-1 second mobile terminals, in which the complex weighting

coefficients w_i^k are associated with the ~~said~~ radiating elements in respect of a radio signal

exchanged with the mobile terminal k, in which P^j and P^k are the transmission powers in respect

of the radio signals exchanged between the fixed station and the mobile terminal j and the mobile

terminal k respectively, and in which the ~~said~~ comparison between the information relating to the

send/receive parameters determined in respect of the first and second terminals corresponds to

the ratio

$$\frac{\sum_{i \in \{1...N\}} \sqrt{P^k} \times \left(w_i^{k*} \cdot w_i^k \right)}{\sum_{j \in \{1...M\}; j \neq k} \sqrt{P^j} \times \left(\sum_{i \in \{1...N\}} w_i^{k*} \cdot w_i^j \right)}$$

26.   (currently amended): The station~~Station~~ controller according to Claim 20,

comprising means for periodically evaluating the ~~said~~ comparison between the information

relating to the send/receive parameters determined in respect of the first and second terminals so

as to generate a reconfiguration request for the channel in respect of the ~~said~~ first terminal.

27.   (currently amended): The~~Station~~ station controller according to Claim 20,

furthermore comprising means of estimation of speed of the first mobile terminal at least, ~~in~~

~~which~~wherein the allocation of a code nonorthogonal to at least one code of the set already

allocated to another channel set up in respect of a second mobile terminal in the cell by the ~~said~~

means ~~of allocation~~ for conditionally allocating ~~of~~a code to the channel to be set up or to be

reconfigured in respect of the ~~said~~ first terminal is further conditioned ~~make allowance for~~on the

estimated speed.

28.   (currently amended): ~~Station~~ The station controller according to Claim 27, ~~in~~

~~which~~wherein the means of estimation of speed ~~comprise~~ comprises means of estimation of an

angular speed of the ~~said~~ mobile terminal comprising means of storage of ~~some at least~~a plurality

of the ~~said~~ information received, relating to the send/receive parameters determined in respect of

the ~~said~~ terminal and the fixed station and means of estimation of a variation of the ~~said~~

information received over a time period.

29.   (currently amended): The station~~Station~~ controller according to Claim 20,

furthermore comprising means of estimation of a sense of movement of the ~~said~~ first and second

mobile terminals, ~~in which~~wherein the means ~~of allocation of~~for conditionally allocating a code

to the channel to be set up or to be reconfigured in respect of the first terminal ~~make allowance~~

~~for~~further conditions the allocation on the ~~said~~ estimations of the senses of movement.

30.   (currently amended): The station~~Station~~ controller according to Claim 29,

comprising means for subjecting the ~~said~~ comparison between the information relating to the

send/receive parameters determined in respect of the first and second terminals to a more severe

criterion if the ~~said~~ estimations of the senses of movement show a mutual approaching of the first

terminal and ~~at least one of~~ the ~~said~~ second terminal~~terminals~~.

31.   (currently amended): The station~~Station~~ controller according to Claim 20, ~~in~~

~~which~~wherein the ~~said~~ means ~~of allocation~~for conditionally allocating ~~of~~a code ~~admit~~perform

the allocation, to the said channel, of a code nonorthogonal to at least one code of the set already

allocated to another channel set up in respect of a second mobile terminal in the cell, when the

~~said~~ comparison between the information received, relating to the send/receive parameters

determined in respect of the first and second terminals, exhibits a discrepancy greater than a

threshold.

32.   (currently amended): ~~Station~~ The station controller according to Claim 20, ~~in which~~wherein the ~~said~~ means ~~of allocation~~ for conditionally allocating ~~control~~ allocates a code nonorthogonal to at least one code already allocated to another channel set up in respect of a second terminal from among the codes of the set of codes that are not allocated~~the allocation~~ to the channel to be set up or to be reconfigured in respect of the ~~said~~ first terminal ~~of a code nonorthogonal to at least one code already allocated to another channel set up in respect of a second terminal~~ such that the ~~said~~ comparison between the information relating to the send/receive parameters determined in respect of the first and second terminals exhibits a maximum discrepancy.